

OPINION

Regulations Overshadow Science in Ohio's Educational Standards

IT'S NOT CLEAR THAT THE COMPLEXITY and "sausage making" of federal legislation should be taught as science or that the facts and phenomena of science should be considered "issues."

Last summer, the Ohio Department of Education (ODE) satisfied a statutory mandate that it deliver to the Ohio Board of Education pre-college school standards updated from 2002. The 2010 standards for high school science, embodied as syllabi (outlines of the coursework main points), will provide instructional objectives for Ohio's teachers and subject headings against which the State will test Ohio's students on their way to a high school diploma.

The Ohio Academy of Science reviewed 2010's standards for their science content. Finding significant omissions and weak content, the Academy submitted specific comments and proposed changes to ODE leadership well before the standards' submission to the State Board. Unfortunately, these comments went unheeded. ODE is now developing curricula based on these flawed science standards ultimately leaving Ohio's students with a considerable gap in science instruction.

By the 2010 standards, it appears students will see no practical application of science and will learn nothing of many fundamental science concepts such as those of bacteria and antibiotics, but they will (and must) learn of the environmental movement and regulations. For example, the 2002 standards included an Earth and Space Science component that reasonably explored subjects such as the science and phenomena of atmospheric chemistry, lunar eclipses and environmental ecosystems. The 2010 version relegates part of this standard to grades 5-8 in a simplified version and moves other parts to chemistry and geology syllabi. At the high school level, 2002's Earth and Space Science was largely replaced with an expanded and modified version of environmental science.

THE NEW ENVIRONMENTAL SECTION appears to include little of the biology, chemistry and physics associated with the science of the environment but offers significant focus on the environmental regulations, including a separate section for its history, the only historic section offered in ODE's science standards. Students are not expected to learn of Galileo, Pasteur or Curie but by 2010's environmental science high school syllabus, they must learn about the Clean Air

and Clean Water Acts, permits (presumably, the basis upon which manufacturing is regulated), changes in environmental law and regulations in the US and become familiar with environmental "issues." It's not clear to the Academy that the complexity and "sausage making" of federal legislation should be taught as science or that the facts and phenomena of science should be considered "issues."

EARLIER IN THE LAST DECADE, creationism's concept of "critical analysis" of evolution appeared in Ohio's 2002 science standards. Later the State Board removed critical analysis after The Ohio Academy of Science and other Ohio groups worked to recover the scientific integrity of the state's science education standards, and following a relevant court decision in Dover, Pennsylvania. As the 2010 environmental science standard appears to introduce concepts of federal statutes and regulations, ODE is advised once again to review the purpose of science education. Compliance with federal regulations is no more an appropriate objective of environmental science standards than is completion of Form 1040 a proper objective of math education. Whereas such a less-challenging goal may facilitate function with and within the federal bureaucracy, it can't be projected to produce scientists sufficiently familiar with environmental biology, chemistry and physics to be competitive on a global scale.

It is clear that Ohio's science standards are limited in general and, specifically for its environmental standard, appear to be distracted with non-science. Yet neither ODE nor the State Board of Education shows any inclination to address these concerns. The Academy hopes that national science educational standards currently under development will treat science with greater rigor and will supplant Ohio's weak standards.

Thus, it seems to be a waste of time and dollars for ODE to develop curricula based on fundamentally flawed standards destined to be replaced within the next few years.

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